International Journal of Maxillofacial Prosthetics (iJMP)

CASE REPORT

Prosthodontic rehabilitation on a patient with limited mouth opening related to rheumatoid arthritis: A clinical report

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ABSTRACT

Specific considerations are needed for the dental treatment of patients with rheumatoid arthritis because they may experience disease-related problems such as trismus, impairment of the temporomandibular joint or hands, and side effects of medication that affect alveolar bone. Here we describe successful prosthetic treatment that addressed disease-related problems, including trismus, in a patient with rheumatoid arthritis. (*Int J Maxillofac Prosthetics 2022;5:18-21)*

Keywords

Rheumatoid arthritis, trismus, temporomandibular joint disorders, prosthodontics, dental care for disabled.

AUDIOABSTRACT

ARTICLE INFO

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Received: 31 March 2022
Received in revised form: 05 June 2022
Accepted: 13 June 2022

INTRODUCTION

Rheumatoid arthritis is an autoimmune disease characterized by inflammation of the joints in the hands, wrists, and knees. Several studies have reported a higher incidence of temporomandibular joint (TMJ) disorder in patients with rheumatic diseases than in healthy individuals.[1-3] Also, 70% of patients with rheumatoid arthritis are reported to have at least one sign or symptom of TMJ disorder.[2] In these patients, pain or collapse of the joint can lead to trismus.[4]

Trismus is a condition in which the mouth opens less than 35 mm and can be categorized as mild, moderate, or severe according to maximal inter-incisal opening.[5] Exercises to treat the trismus may not be successful,[6] making dental treatment challenging.[7]

Options for dental treatment in patients with trismus include using dental equipment with smaller heads,[8] and special trays for impression making, such as adjusted ready-made trays, flat-designed individual trays, and split trays.[8-10] Nevertheless, treatment can still be challenging because rheumatoid arthritis can impair hand function, which makes dental hygiene and handling the prosthesis difficult for patients.[11-14] Medications for rheumatoid arthritis have some side effects, including stomatitis,[15,16] and medications for disease-related osteoporosis also present a potential problem in dental treatment because of the increased risk ofosteonecrosis.[17-19] Therefore, some specific considerations are needed when performing prosthodontic treatment in patients with rheumatoid arthritis. This case report describes successful prosthetic treatment in a patient with rheumatoid arthritis.

CASE REPORT

A 66-year-old woman with rheumatoid arthritis was referred to our department of maxillofacial prosthetics from our dental hospital's special care clinic with a chief complaint of discomfort when eating. She was diagnosed with rheumatoid arthritis, Stage III, Class 2 at 23 years of age. She started taking methotrexate 8.0 mg/w for her rheumatoid arthritis at 61 years of age and took alendronate sodium hydrate for osteoporosis from age 61 to 65 years. She also had a history of hypertension, hyperlipidemia, and pulmonary tuberculosis. In terms of her dental history, after experiencing difficulty opening her mouth and attending a TMJ clinic, she had received dental treatment

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at the special care clinic of our dental hospital at the age of 60.

Upon presentation to us, she had deformed hands and limited mouth opening of 17 mm, which was evaluated as moderate trismus (Fig. 1). Intraorally, teeth #17-14 and #24-27 were missing and the root only of #13 remained (Fig. 2). Overbite and reduced vertical occlusal height were evident. Radiographic examination revealed moderate periodontal disease (Fig. 3), bilateral degenerative joint disease, and fibrotic ankylosis of the TMJ (Fig. 4).

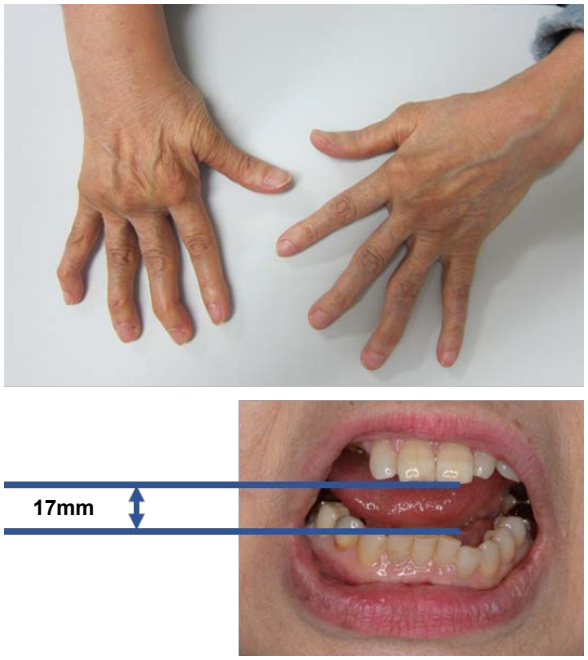

Fig 1. Extraoral condition of the patient with rheumatoid arthritis.

Fig 2. Intraoral view before treatment..

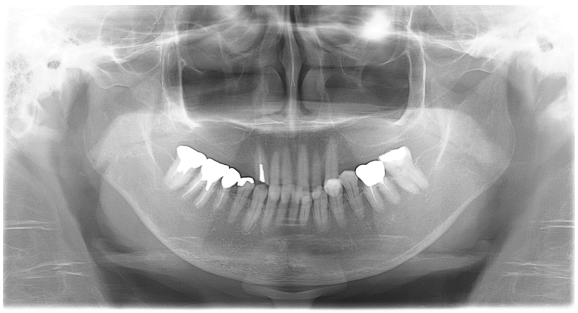

Fig 3. Radiographic examination of the teeth.

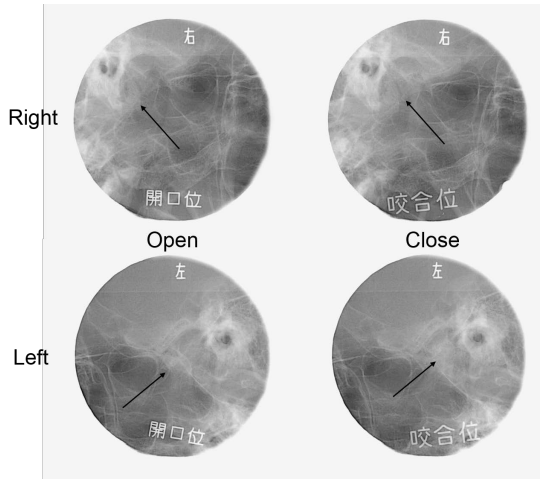

Fig 4. Radiographic examination of the temporomandibular joint.

Periodontal treatment and a prosthesis for the missing molars were planned to account for the trismus and the lack of clearance for dentures, as well as her impaired hand function and the effects of medications. The patient received toothbrush instruction using an electric toothbrush[11] and standard periodontal treatment. The prosthesis was designed with an acrylic horseshoe base, flat-carved acrylic teeth, and cobalt-chromium wire clasps for retention. The rest seat was prepared using a small-head handpiece and short bars. A cut-edge stock tray was used for the initial impression and a flat-designed individual tray for the final impression. A record base made without any excrescent part was used to register the jaw relationship, and the prosthesis was completed in a conventional manner. After careful adjustment, the patient was instructed to remove the prosthesis if she experienced pain or discomfort. Cleaning of the prosthesis was demonstrated using a brush attached to the sink.[13]

After periodontal treatment, pocket depth was less than 3 mm with the gingiva in good condition. The overall height of the completed prosthesis was 15 mm and the thickest part was 5 mm (Fig. 5). Adjustments were carefully performed over several visits and no ulceration was evident. The patient could insert and remove the prosthesis using her better hand. Although the prosthesis was fabricated as thinly as possible, she had an open bite due to the

lack of clearance (Fig. 6). However, she could masticate basic foods with the prothesis placed. She was able to clean the prosthesis using the brush with her better hand. She was satisfied with the prosthesis and attended appointments for maintenance every 6 months. The periodontal tissue and remaining teeth continued to be healthy. No osteonecrosis of the alveolar bone or aggravation of the TMJ disorder was found for 6 years.

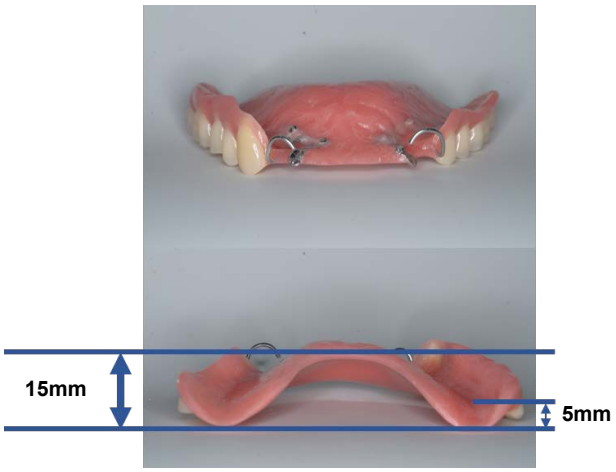

Fig 5. Frontal view of the patient's face after fitting the prosthesis.

Fig 6. Intraoral view with the prosthesis placed.

DISCUSSION

Moderate trismus (mouth opening of 17mm)[5] makes it difficult to use standard dental equipment, and using special trays and small dental instruments can help with prosthesis fabrication. In this case, we selected a horseshoe-type base to help reduce the overall height of the prosthesis, which facilitated insertion and provided clearance for food intake.

Despite the risks of stomatitis and osteonecrosis from the patient's history of medication for rheumatoid arthritis and related osteoporosis,[15,16,18] her intraoral condition was maintained well after delivery of the prosthesis. Careful adjustment of the prosthesis and regular follow-ups likely reduced the risk of ulcer formation and other problems.

We opted for a simple wire clasp to make insertion and removal of the prosthesis easier because of the patient's reduced hand function. We also instructed the patient in the use of an electric toothbrush. Although some disadvantages of electric toothbrushes, including the cost, have been reported,[11] a range of options are now widely available, including brushes with adhesive disks, so fabrication for patients is not necessary as in the past.[13] In the present case, proper prosthesis design and choosing appropriate equipment for maintaining oral hygiene enabled the patient to retain some independence and facilitated dental care.

CONCLUSION

We have described successful prosthetic treatment in a patient with rheumatoid arthritis. Dentists can play a role in the rehabilitation of patients with rheumatoid arthritis by addressing disease-related problems.

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